Table of comparative maximum and minimum temperatures for the month of

| State or Territory. Alabama Do | Mobile Prescott Yuma Little Rock Fort Smith San Francisco San Diego Denver Pike's Peak New Haven New London Fort Buford Yankton Cape Henlopen Del Breakwater Washington City Jackson Ville Key West | 98.6 78.0 81.8 97.3 57.0 93.5 92.4 96.0 100.7 98.0 | 8%5. Min. 63.1 66.0 47.6 64.6 63.8 557.6 50.3 24.2 50.3 53.0 45.7 47.8 54.1 70.6 73.3 | Since Max. 0 106.9 101.0 103.0 101.3 104.5 53.0 86.0 102.3 64.0 102.0 104.0 102.0 104.0 102.0 104.0 102.0 104.0 97.0 97.0 | | Min. 60.8 63.8 42.0 61.0 61.0 19.0 53.0 18.0 51.0 37.5 44.0 | Year, 18° 188' 187, 189, 189, 189, 189, 187, 187, 187, 187, 187, 187, 187, 187 |
|--|---|--|--|---|--|--|--|
| Alabama | Montgomery Mobile Prescott Yuma. Little Rock Fort Smith San Francisco. San Diego Denver Pike's Peak New Haven New London Fort Buford Yankton Cape Henlopen Del Breakwater. Washington City. Jacksonville Key West Atlanta Savannah Boisé City. Lewiston Chicago | 98.0 98.0 98.5 100.0 98.6 78.0 81.8 97.3 57.0 93.5 92.4 96.0 100.7 98.0 | 63.1 66.0 47.6 64.6 63.8 51.0 57.6 60.3 24.2 50.3 24.2 50.3 54.5 54.7 47.8 54.1 70.6 | 0 106.9 101.0 103.0 118.0 101.3 104.5 53.0 86.0 102.3 64.0 93.0 104.0 103.0 | 1881 1883 1875 1878 1884 1884, 1884 1887, 1884 1877 1876, 1876 1876, 1876 1883 1883 | 60.8 63.8 42.0 61.0 61.0 49.0 18.0 51.0 37.5 44.0 | 185 185 187 187 188 188 1874, 188 187, 187 187, 187 187, 187 187, 187 |
| Do Arizona Arizona Arizona Arizona Arizona Arizona Arizona Do Do California Do | Mobile Prescott Yuma Little Rock Fort Smith San Francisco San Diego Denver Pike's Peak New Haven New London Fort Buford Yankton Cape Henlopen Del Breakwater Washington City Jacksonville Key West Atlanta Savannah Boisé City Lewiston Chicago | 98.0 94.0 98.5 100.0 98.6 78.0 81.8 97.3 57.0 93.5 96.0 100.7 98.0 99.1 94.8 93.5 91.2 95.2 | 63.1 66.0 47.6 64.6 63.8 51.0 57.6 50.3 24.2 50.3 53.0 45.7 47.8 54.5 | 106.9 101.0 118.0 101.3 104.5 \$3.0 86.0 102.3 64.0 95.0 93.0 104.0 103.0 | 1883 1876 1878 1884 1884, 1884 1887, 1877 1876 1876, 1876 1881 1883 1883 | 60.8 63.8 42.0 61.0 61.0 51.0 49.0 18.0 51.0 37.5 44.0 | 188- 187- 187- 188- 188- 1874, 188- 187- 187- 187- 187- 187- 187- 187- |
| Do Arizona Arizona Arizona Arizona Arizona Arizona Arizona Do Do California Do | Mobile Prescott Yuma Little Rock Fort Smith San Francisco San Diego Denver Pike's Peak New Haven New London Fort Buford Yankton Cape Henlopen Del Breakwater Washington City Jacksonville Key West Atlanta Savannah Boisé City Lewiston Chicago | 94.0 98.5 100.0 98.6 78.0 97.3 57.0 93.5 92.4 96.0 100.7 98.0 | 60.0 47.6 64.6 63.8 54.0 57.6 50.3 24.2 50.3 24.7 47.8 54.5 54.5 | 101.0 103.0 118.0 101.3 104.5 \$3.0 86.0 102.3 64.0 95.0 104.0 103.0 | 1883 1876 1878 1884 1884, 1884 1887, 1877 1876 1876, 1876 1881 1883 1883 | 63.8 42.0 61.0 61.0 51.0 49.0 18.0 51.0 51.0 37.5 44.0 | 188- 187- 187- 188- 188- 1874, 188- 187- 187- 187- 187- 187- 187- 187- |
| Arizona Do | Prescott Yuma. Little Rock Fort Smith San Francisco. San Diego Denver Pike's Peak New Haven New London Fort Buford Yankton Cape Henlopen Del. Breakwater. Washington City. Jacksonville Key West Atlanta Savannah Boisé City. Lewiston Chicago | 98.5 100.0 98.6 78.0 81.8 97.3 57.0 93.5 92.4 96.0 100.7 98.0 | 47.6 64.6 63.8 54.0 57.6 50.3 24.2 50.3 53.0 45.7 47.8 54.5 | 103.0 118.0 101.3 104.5 63.0 86.0 102.3 64.0 95.0 93.0 104.0 103.0 | 1875 1878 1884 1884 1881, 1884 1877, 1874 1879 1876, 1876 1883 1883 | 42.0 61.0 61.0 61.0 49.0 53.7 42.0 18.0 51.0 37.5 44.0 | 187: 187: 188: 188: 1874, 188 187: 187: 187: 184: 189: |
| Arkanas Do D | Little Rock Fort Smith San Francisco San Diego Denver Pike's Peak New Haven New London Fort Buford Yankton Cape Henlopen Del. Breakwater Washington City JacksonVille Key West Atlanta Savannah Boisé City Lewiston Chicago | 98.6 78.0 81.8 97.3 57.0 93.5 96.0 100.7 98.0 94.8 93.5 91.2 | 63.8 54.0 57.6 50.3 24.2 50.3 53.0 45.7 47.8 54.5 | 101.3 104.5 63.0 86.0 102.3 64.0 95.0 93.0 104.0 103.0 | 1884 1881, 1884 1877 1877 1874 1876 1876 1886 1883 1883 1879 1879 | 61.0 61.0 49.0 53.7 42.0 18.0 51.0 37.5 44.0 | 188: 1874, 188 1874, 188: 187: 187: 187: 187: 184: 189: |
| Do | Fort Smith | 98.6 78.0 81.8 97.3 57.0 93.5 96.0 100.7 98.0 94.8 93.5 91.2 | 63.8 54.0 57.6 50.3 24.2 50.3 53.0 45.7 47.8 54.5 | 104.5 £3.0 86.0 102.3 64.0 95.0 93.0 104.0 103.0 91.0 102.0 104.0 | 1884 1881, 1884 1877 1874 1879 1876, 1876 1881 1883 1889 1879 | 51.0 49.0 53.7 42.0 18.0 51.0 37.5 44.0 | 188: 1874, 188 187: 187: 187: 187: 189: 189: |
| Do | San Diego Denver | 81.8 97.3 57.0 93.5 92.4 96.0 100.7 98.0 99.1 94.8 93.5 91.2 95.2 | 57.6 50.3 24.2 50.3 53.0 45.7 47.8 54.5 54.1 70.6 73.3 | 95.0 93.0 104.0 103.0 102.0 104.0 | 1877 1874 1879 1876 1886 1881 1883 1880 1879 | 53.7 42.0 18.0 51.0 51.0 37.5 44.0 | 158 187 187 157 187 183 187 |
| olorado Do D | Denver Pike's Peak New Haven New London Fort Buford Yankton Cape Henlopen Del Breakwater Washington City Jacksonville Key West Atlanta Savannah Boisé City Lewiston Chicago | 97.3 57.0 93.5 92.4 96.0 100.7 98.0 99.1 94.8 93.5 91.2 | 50.3 24.2 50.3 53.0 45.7 47.8 54.5 54.1 70.6 73.3 | 95.0 93.0 104.0 103.0 102.0 104.0 | 1874 1876 1876 1876, 1876 1881 1883 1880 1879 | 42.0 18.0 51.0 51.0 37.5 44.0 | 187 187 167 187 184 187 188 188 |
| onnecticut Do Bo Do Do Bo Do Bo Do Bo Do Do Do Do Do Do | New Haven New London Fort Buford Yankton Cape Henlopen Del. Breakwater Washington City. Jacksonville Key West Atlanta Savannah Boisé City Lewiston Chicago | 93.5 92.4 96.0 100.7 98.0 99.1 94.8 93.5 91.2 95.2 | 50.3 53.0 45.7 47.8 54.5 54.1 70.6 73.3 | 95.0 93.0 104.0 103.0 91.0 102.0 | 1879 1876, 1876 1881 1883 1880 1879 | 51.0 51.0 37.5 44.0 59.0 56.1 | 187: 187: 187: 187: 188: 188: |
| Do | New London Yankton Cape Henlopen Del, Breakwater Washington City Jacksonville Atlanta Savannah Boisé City Lewiston Chicago | 92.4 96.0 100.7 98.0 99.1 94.8 93.5 91.2 95.2 | 53.0 45.7 47.8 54.5 54.1 70.6 73.3 | 93.0 104.0 103.0 91.0 102.0 104.0 | 1876, 1876 1881 1883 1880 1879 1879 | 51.0 37.5 44.0 59.0 56.1 | 187: 187: 189: 188: |
| Do | Yankton Cape Henlopen Del, Breakwater Washington City Jacksonville Key West Atlanta Savannah Boisé City Lewiston Chicago | 99.1 94.8 93.5 91.2 95.2 | 54.1 70.6 73.3 | 91.0 102.0 104.0 | 1883 1880 1879 1879 | 59.0 56.1 | 187; 189; 188. |
| elaware Do | Cape Henlopen Del, Breakwater Washington City Jacksonville Atlanta Savannah Boisé City Lewiston Chicago | 98.0 99.1 94.8 93.5 91.2 95.2 | 54.1 70.6 73.3 | 91.0 102.0 104.0 | 1880 18 7 9 1879 | 59.0 56.1 | 189 |
| ist, of Columbia Do | Washington (ity Jacksonville | 93.5 91.2 95.2 | 70.6 73.3 | 102.0 104.0 | 18 7 9 18 7 9 | . 56.1 | 1884 |
| lorida | Key WestAtlanta | 93.5 91.2 95.2 | 70.6 73.3 | 104.0 | 1879 | 1 60 . | |
| eorgia | Atlanta Savannah Boisé City Lewiston Chicago | 91.2 95.2 | | 07.0 | | | 1877, 1879 |
| Do | Savannah Boisé City Lewiston Chicago | 95.2 | ٠,٠,٠ | 99.0 | 1880 | 72.7 53.0 | 188 |
| Do linois Do | Boisé City Lewiston Chicago | 98.5 | 65.4 | 105.0 | 1879 | 66.0 | 1870 |
| linois Do | Chicago | 99.3 | 50.6 | 106.0 104.8 | 1877 1882 | 48.0 | 1880, '81, '82 |
| | Cairo | 93.9 | 53.I 52.6 | 99.0 | 1874 | 50.0 | 1873 |
| | Indianapolis | 95.8 | 62.1 | 99.0 | 1874, 1881 | 60.0 | 188 188 |
| Do | Greencastle | 94 • 5 92 • 4 | 47.5 53.4 | 101.0 | 1881 | 53.0 | 100 |
| dian Territory | Fort Supply Fort Sill | 96.0 | 60.0 | ·· | | | |
| Do | Dubuque | 97.1 | 62.5 51.5 | 101.0 | 1881 1874 | 56.0 50.4 | 1880 1882 |
| Do | Keokuk | 99.0 | 58.0 | 100.0 | 1874 | 56.0 | 73, 80, 83 |
| ansas Do | Leavenworth Dodge City | 98.0 97.3 | 50.0 56.6 | 104.0 | 1874 1876 | 53.5 50.0 | 1882 1877 |
| entucky | Louisville | 97.2 | 54.0 | 102,0 | 1874 | 57.0 | 1882 |
| ouisiana Do | New Orleans Shreveport | 92.5 99.7 | 74·5 69.2 | 96.0 107.0 | 1877 1875 | 64.0 | 1882 77, '80, '82 |
| aine | Eastport | 77.0 | 49.0 | 86.0 | 1873, 1880 | 45.0 | 1882, 1884 |
| Doaryland | Portland Baltimore | 86.8 98.7 | 53.7 56.0 | 97.0 99.0 | 1876 76, °7 9,'80' | 51.0 59.0 | 1876, 1882 1876, 1882 |
| assachusetts | Boston | 92.8 | 51.4 | 101.0 | 1880 | 46.0 | 1874 |
| Do chigan | Springfield Marquette | 88.8 | 46.4 | 94.5 100.0 | 1876 1878 | 49.0 | 1876 1883 |
| Do | Detroit | 89.5 | 54 - 4 | 100.0 | 1878 | 50.0 | 1872, 1883 |
| Innesota Do | Saint Vincent Saint Paul | 91.1 | 39.2 55.0 | 92.5 100.0 | 1881 1883 | 40.0 46.0 | 1881, 1883 1873 |
| ississippi | Vicksburg | 98.7 | 04.4 | 100.0 | 1878, 1881 | 62.0 | 1881 |
| issouriontana | Saint Louis Fort Assinaboine | 96.6 96.0 | 60.0 41.3 | 104.0 95.0 | 1881 1882 | 57.0 35.0 | 1876 1881 |
| Do | Fort Custer | 100.0 | 44.2 | 103.0 | 1881 | 42.0 | 1882 |
| ebraska Do | North Platte Omaha | 97.6 97.8 | 48.0 55.2 | 107.0 105.0 | 1877 1874 | 45.0 51.0 | 1877, 1882 1873 |
| evada | Winnemucca | 92.4 | 42.0 | 104.0 | 1877 | 37.0 | 1877, 1578 |
| Doew Hampshire | Pioche Mount Washington | 69.4 | 25.5 | 98.0 72.0 | 1878 1881 | 45.0 27.0 | 1850 1883 |
| ew Jersey | Sandy Hook | 96.7 | 35.5 58.4 61.0 | 100.0 | 1876 | 50.0 | 1880 |
| Po w Mexico | Cape May Santa Fé | 88.5 88.5 | 61.0 | 91.0 | 1872 1878 | 56.0 46.0 | 1880 1872, 1880 |
| w York | Buffalo | 87.4 | 53.0 48.3 | 90.0 | 1878 | 47.5 | 1876 |
| Doorth Carolina | New York City Charlotte | 95-9 | 56.2 56.1 | 0.101 | 1876 1879 | 57.0 60.0 | 18 73, 1882 1883 |
| Do | Smithville | 95.0 89.9 | to.2 | 100.0 | 1879 1881 | 61,0 | 1881 |
| nio, Do | Cincinnati | 95.6 | 53.0 | 103.5 96.0 | 1881 1878 | 58.2 49.6 | 1882 1883 |
| regon | Roseburg | 100.8 | 53.0 46.3 | 97.0 | 1880 | 40.0 | 1879 |
| Do ennsylvania | Portland Erie | 99.0 89.8 | 49.1 | 95.5 | 1875 1878 | 46.0 | 1875, 1880 1883 |
| Do | Philadelphia | 97.0 | 53.0 50.9 | 94.0 100.0 | 1870 | 52.0 56.0 | 1883 |
| hode Island | Block Island Newport | 87.8 | 55-3 | | 1881, 1882 | 55.0 | 1883 |
| Do puth Carolina | Charleston | 94.5 | 66.0 | 92.0 104.0 | 1878 | 53·5 67.0 | 1879 '76,'81,'82 |
| Do | Nashville | 96.1 | 57.8 | 101,2 | 1881 | 50.3 | 1882 1882 |
| Xas | Knoxville | 94.0 96.7 | 52.2 58.4 | 100.0 | 1879 | 53.0 53.0 | 1881 |
| Do | Galveston Salt Lake City | 91.5 | 75.0 | 97.0 | 1875 | 69.0 | 1880 1880 |
| rnont | Burlington | 99-7 | 53.8 | 98.0 96.0 | 1877 1878 | 45.0 47.0 | 1875, 1876 |
| irginia | Lynchburg | 97.0 | 54 • 4 | 8, 101 | 1881 | 55.0 | 1870, 1882 |
| Do ashington Ter | Norfolk | 98.8 97.0 | 59.4 43.5 | 102.5 93.5 | 1876 1880 | 60.0 40.0 | 1876, 1877 1882 |
| Do | Dayton | 102.6 | 40.0 | 102.0 | 18So | 37.4 | 1851 |
| est Virginiaisconsin | Morgantown | 2.8ن | 51.7 | 97.0 95.0 | 1874 71, 74, 78 | 50.0 | 1873 1875, 1870, |
| i | : | - ! | | - | | | 1875, 1876, 1880, 1883 1880, 1883 |
| yoning | La Crosse Cheyenne | 92.0 88.2 | 55.7 48.5 | 101.0 | 1874 1881 | 52.0 37.6 | 1882 |

FROSTS.

Frosts are reported to have occurred during July as follows: On the summit of Pike's Peak, Colorado, on the 25th and 28th. Braddock, Summit county, Colorado, from 1st to 9th, 11th, 12th, 14th, 15th, 17th, 18th, 20th, 22d, 23d, 25th.

Boyne, Charlevoix county, Michigan, 10th.

Dale Enterprise, Rockingham county, Virginia: light frosts were reported in the lowlands on the 1st and 2d.

Fort Bridger, Wyoming: light frost occurred on the 15th; age, at the various Signal Service stations. heavy frost on the 26th.

The La Crosse (Wisconsin) "Daily Republican," of July 3d, contained the following:

RICHMOND, VIRGINIA, July 3.—A dispatch from Wytheville, Virginia, states that heavy frosts prevailed in that section Tuesday night (June 30th-July 1st), and ice formed at Crockett's Depot, in Wythe county, vesterday morning. It is the first time in the recollection of anyone here that ice has been known to form in this state in the month of July.

PALMYRA, WISCONSIN, July 3.—A heavy white frost fell in this section on Tuesday night (June 30th–July 1st). It is feared the vineyards have suffered

therefrom.

PRECIPITATION.

[Expressed in inches and hundredths.]

The distribution of rainfall over the United States and Canada for July, 1885, as determined from reports from more than eight hundred stations, is exhibited on chart iii.

In the following table are shown, for each of the geographical districts, the normal July precipitation for a series of years, the average for July, 1885, and the excess or deficiency as compared with the normal:

Average rainfall for July, 1885.

| | fiddle Åtlantic states outh Atlantic states lorida peninsula | | for July. ervice ob- tions. | Comparison of July, 1885, with the av- | |
|----|--|-------------------------|-----------------------------------|--|--|
| | | For sev- eral years. | For 1885. | erage for sev- eral years. | |
| ! | | Inches. | Inches | Inches, | |
| : | New England | | 2.21 | -2.21 | |
| ٠, | | | 2.93 | -1.31 | |
| | | | 4.63 | -1.09 | |
| | | 5.56 | 6,25 | +0.69 | |
| | | | 5.06 | | |
| | | | 4.01 | +0.05 -7.22 | |
| | | | 0.75 | | |
| | | | 4.73 1.90 | +0.71 -2.61 | |
| | | | 3.27 | -2.01 -0.53 | |
| ı | Ilman lake region | | 2.92 | 33 58 | |
| | | | 3.21 | _0.33 _0.02 | |
| | | | 4.05 | -0.00 | |
| | | | 4.09 | -0.07 | |
| ١ | | | 1.94 | +0.08 | |
| ١ | | 3.40 | 3.25 | -0.15 | |
| Ų | Southern slope | 3.18 | 1.71 | -1.47 | |
| i | Southern plateau | 2.24 | 1.30 | -0.94 | |
| ١ | Middle plateau | 0.36 | 0.29 | -0.07 | |
| ı | Northern plateau | | 0.19 | -0.39 | |
| ч | North Pacific coast region | | 0.47 | -0.23 | |
| ľ | Middle Pacific coast region | | 0.11 | +0.05 | |
| ١ | South Pacific coast region | 0.07 | 0.17 | +0.10 | |
| ij | • | _ | | • | |

The rainfall for the month has been decidedly below the average in the southern slope, Rio Grande and Ohio valleys, and on the Atlantic coast from South Carolina northward, the departures being most marked in the Ohio valley and New England. While the average for several districts, viz., the Gulf states, middle slope, and the upper Mississippi and Missouri valleys, nearly corresponds with the respective normals, the precipitation has been of very uneven distribution, there being marked departures, both above and below the average, in the same districts. At Montgomery, Alabama, the monthly precipitation, 7.54, exceeded the July average for the last twelve years by 3.89, while the records at Mobile, Alabama, and Pensacola, Florida, show deficiencies of 2.67 and 4.01 as compared with the normals for fourteen and five years, respectively. the Missouri valley a deficiency of 2.17 occurs at Yankton, Dakota, and an excess of 3.29 at Leavenworth, Kansas, the records at these stations covering periods of twelve and fourteen years, respectively. In the upper Mississippi valley deficiencies of 2.27, 2.38 and 3.45 occur at Davenport and Keokuk, Iowa, and Cairo, Illinois, while at La Crosse, Wisconsin, Saint Paul, Minnesota, and Des Moines, Iowa, the monthly precipitation exceeded the average by 3.49, 2.66 and 2.55, respectively

In the table of miscellaneous meteorological data are given the monthly precipitation, with the departures from the aver-

The following table shows the average July precipitation,

that for July, 1885, and the excess or deficiency, as reported from certain stations by voluntary observers:

| Station. | County. | Average pre- cipitation for July. | Number of | Precipitation for July 1885. | Departure. | |
|--------------------------|--------------------|---|-----------|------------------------------------|-----------------|--|
| Arkansas. Lead Hill | Boone | Inches. 8.35 | 3 | Inches. 8.31 | Inches. 0.c4 | |
| Connections. | Hartford | 4 - 47 | 13 | 5-33 | +0.8 6 | |
| Dakota. Webster | Day | 8.39 | 3 | 4.97 | -3.42 | |
| Illinois. | Union | 3.96 4.04 | 10 24 | 2.19 2.07 | -1.77 -1.97 | |
| Biley | | 4.16 | -4 | 2.37 | -1.79 | |
| Ollinsville | Madison De Kalb | 6.44 | | 4.98 | -1.46 | |
| Sycamore Sandwich | De Kalb | 4.04 | 4 34 | 2.53 | -r.5r | |
| | Cass | 4.28 | 26 | 4.00 | 0,28 | |
| Logansport | Switzerland | 4.15 | 20 | 2.46 | | |
| Vevay Spiceland | Henry | 4.32 | 27 | 1.83 | -2.49 | |
| Mauzy | Rush | 2.89 | 4 | 1.56 | -1.33 | |
| Wellington | Sumper | 4.02 | 7 | 4.94 | 0.92 | |
| awrence | Douglas | 4.50 | ן לַנוּ | 0.03 | +1.53 | |
| ndependence | Montgomery | 4.36 | 13 | 5.02 | 0.60 | |
| Age Centre | Woodson | 3.38 | 5 | 80.11 | -8.30 | |
| Manhattan | Biley | 4.69 | 25 | 4.99 | 0.30 | |
| Jardiner | Kennebec | 3.37 | 47 | 1 -73 | -1.64 | |
| Fallston Massachusetts. | Harford | 3.51 | 11 | 3.33 | -0.18 | |
| Somerset | Bristol, | 3.78 | | 2.73 | -1.41 | |
| Worcester | Worcester | 3.11 | 43 | 2,10 | 1.01 | |
| Oarson City | Ormsby | 0.11 | | 0.00 | -0.11 | |
| South Orange | Essex | 4.50 | 15 | 4.00 | | |
| North Volney | Oswego | 3.67 | 14 | 4.35 | +0.68 +0.55 | |
| Palermo | Oswego | 3.30 | 32 | 3.85 | +0.55 | |
| Menand Station | Albany | 4.42 | 3 | 2.52 | ∸1.90 | |
| Wauseon Pennsylvania. | Fulton | 4.42 | 13 | 3.03 | —I.39 | |
| Dyberry | Wаупе | 4.75 | 14 | 1.70 | —3.05 | |
| New Ulm | Austin | 4-49 | 14 | 3.24 | —ı.25 | |
| Woodstock | Windsor | 3.96 | 17 | 3.29 | -0.67 | |
| Wytheville | Wythe | 3.94 | 21 | 1.32 2.86 | -2.62 | |
| Dale Enterprise | Rockingham | 4.05 | 5 | 2.86 | -1.19 | |
| | | | | | | |

snow.

Pike's Peak, Colorado: 2d, 3d, 16th, 17th, 20th to 24th.

With the exception of the above, no reports of the occurrence of snow during the month have been received.

The observer at the above station also reports that there remained, at the close of the month, scattering drifts of unmelted snow on the sides of the mountain.

The occurrence of sleet during the month has been reported from but one station, viz., Pike's Peak, Colorado, on the following dates: 1st, 2d, 4th, 5th, 8th, 10th, 19th to 24th, 27th, 28th, 29th.

Fort Yates, Dakota, 3d: a thunder-storm, with heavy rain and hail, occurred between 4.30 and 5 p.m., moving from northwest to southeast. The hail-stones varied in size from onefourth to one and one-fourth inches in diameter. Crops were slightly damaged.

Chatham, Columbia county, New York: this place was visited by a severe hail storm at about 6.30 p.m. on the 5th. For ten minutes the hail-stones, measuring from one to three inches in diameter, fell thickly and banked up along fences like winter snow drifts. Roofs were damaged, windows destroyed, trees stripped of their foliage, and small animals killed. The damage to roofs and windows is estimated at \$2,000. Total damage

Canajoharie, Montgomery county, New York, 5th: a severe hail storm visited all parts of the Mohawk valley during the afternoon. Windows were broken and all kinds of crops

greatly damaged.

| Table of excessiv | e, and greate | st montkly pr | ecipitation—Jı | ıly, 1885. |
|-------------------|---------------|---------------|----------------|------------|
| | | | | |

| ł | 1 anie oj e | accessive, | unu | yı etticət ii | concrete precipition | Met Ole 9 | **y, 10 | |
|---|---------------------------------------|----------------------|--------------|---------------------|--------------------------------|---|--------------|---|
| | | Specially 1 | heavy. | Largest monthly. | | Specially | heavy, | Largest monthly. |
| | Station. | Date. | Amt. | Amount, | Station. | Date. | Amt. | Amount. |
| | Alabama. | | | | Minnesota. | | | |
| 1 | Montgomery | | ******** | 7·54 6.98 | Park Rapids | | | 6.:9 |
| ı | Opelika | | ******* | 6.92 | Rochester | 8 | 2.56 | *************************************** |
| 1 | Scottsborough Tuscumbia | | | 0.40 | Waynesborough | 8 | 2.31 | 7.30 6.61 |
| ļ | Gadsden | 11, 12 | 2.00 | | Vicksburg Missouri, | 4, 5 | 1.95 | 6.61 |
| İ | Arizona. | 22, 23 | 2.25 | | Springfield | 10, 11, 12 | 4.57 | 9.14 |
| 1 | Prescott | | 2.21 | | Protem | | | 8.31 8.00 |
| Į | Arkansas. Lead Hill | 2, 3 | 3.79 | 8.31 | Lamar | 2, 3 | 5-97 | 7.75 |
| 1 | Mount Ida | 21, 22 | 2.90 | | Independence Montana. | 24, 25 | 2.95 | 6.45 |
| ١ | Colorado. Braddock | 26 | 2.15 | | Poplar River | 15, 16 | 2.76 | ******** |
| Į | Fort Lyon | | | | Nebraska. Minden | | | 11.79 |
| . | Connecticut. | 29 | 2.56 | | ()maha | 21, 22 | 2.20 |) |
| 1 | Da kota. | ĺ | | ! | Do Do | 23 25 | 2.57 | 9.24 |
| | Webster | 19 | 2.21 | ************ | Do | *************************************** | | 7.64 7.61 |
| 1 | Cape Henlopen | 26, 27 | 2.61 | | Fairbury | *********** | | 7.56 |
| 1 | Florida. Manatee | 13, 14, 15 | ó.21 | 12.54 | Fairbury Crete Syracuse | 20, 21, 22 | 4.00 | 7.25 6.62 |
| 1 | Limona | 13 to 16 | 7.30 | 0.20 |) Dewitt | | . | . 0.10 |
| ١ | Cedar Keys Fernandina | 2 | 3.32 | 7.02 | Marquette Do | I, 2 | 2,32 | ************* |
| | Jackson ville Tallahassee | 16 | | 7.16 6.65 | De Soto | 23, 24 | 2.20 | |
| ١ | Mayport | 12 | 2.10 | | New Hampshire. Mt. Washington. | Į. | 2.02 | 11.34 |
| 1 | Georgia. Albany | I | 2.05 | ١, | Wolfeborough | 5 | | |
| 1 | Do | 24 | 3.60 | 9.09 | New Jersey. | 6, 7 | 3.31 | 7.28 |
| Ì | Savannah Way Cross | · | 2.00 | 7.88 | New York. | 1 | | |
| Į | Jesup | 17 | 2.00 | 7.55 | North Carolina. | 7 | 2.33 | ; •••••••••••••••••••••••••••••••••••• |
| , | Millen | 23, 24, 25 | 4.00 | 7.41 | Lenoir Charlotte | | 2.00 | 6.70 6.31 |
| . | Millen | | 2.78 | | Fort Macon | 11, 12 | 4.39 | |
| ; | Augusta Thomasville | 16 | 2,20 | | Weldon | 26, 27 | 3.52 | |
| ' | Newnan | 25, 26 | 2.19 | | Jacksonborough. | 23, 24 | 3.25 | |
| , | Dalton | : | | | Hirum Garrettsville | 24 24 | 2.31 | |
| , | Wilton Centre Rockford | 23 9 | 2.19 | | Pennsylvania. | | 1 | 1 |
| | Indiana. | į | | | Grampian Hills South Carolina. | i | | 6,14 |
| 1 | Delphi | 21, 22, 23 | 2.50 | 6.31 | Saint Matthew's. | 12, 13 | 3.44 | 8.83 |
| 1 | Terre Haute Lafayette | 22, 23, 24 | 2.50 | | Yemassee | ************ | 2.31 | 8.74 8.68 |
| | Vevay | 21, 22 | 2.49 | | Jacksonburg Hardeeville | 12. 13 | 3.20 2.52 | |
| , | lowa. | 1 | i | | Charleston | 21 | 2.24 | 7.49 |
| 5 | Des Moines Cedar Rapids | 24, 25 | 2.45 | 6.55 6.35 | Allendale Kingstree | 8r | 2.74 | 6.49 |
| ٠ | Cedar Rapide Dubuque Monticello | .' | ! | 6.35 | Columbus | 4, 5 | 2.04 | *************************************** |
| | Logan | 21 | 2.40 | | Tennessee. Knoxville | 4, 5 | 2.37 | |
| | Kausas. Yates Centre | i | 6.87 | 1 | Nashville | 4, 5 | 2.25 | |
| , | Do | 4.5 | 2.43 | 11.68 | Texas. Clarksville | | 3.57 3.68 | 7.95 |
| | Emporia Oswego | 1, 2 | 7.55 5.81 | 8.95 | San Antonio | . 2, 3 | | 6.56 |
| | Salina Do | 1, 2 30 | 2.03 | 7.02 | Comfort | .) 2 | 2.58 | |
| L | Sterling | .; I | 2.25 | 6.88 | Do | . 5 | 2.10 | |
| | Clay Centre Dodge City | | 2.21 | 6.06 | LongviewJunct' | . 6 | 2.21 | |
| | Do | . 26, 27 | 2.19 | 6.03 | Weimar | . 6 | 2,30 | |
| | Lawrence Independence | | 2.37 | 6.03 | Waco | 5, 6 | 2.07 | |
| l | Sherlock | . 10, 11 | 2.32 | | Dallas Corsicana | . 0 | 2.00 | *************************************** |
| • | Wellington W. Leavenworth. | . 10, 11 . 25, 26 | 2.14 | | Huntsville | . 29 | 2.00 | ****** |
| 1 | Louisiana. New Orleans | | 1.98 | 6.15 | Newport | | . | 6,62 |
| | Shreveport | 4, 5, 6 | 3.11 | | West Virginia. | . 13, 14 | 2.56 | |
| | Luling Monroe | 6.7 | 3.00 | | Wisconsin. | 1 |) | |
| 1 | Maine. | | | | Embarras La Crosse | | 3.78 | 10.45 8.51 |
| - | Cornish | . 6 | 2.33 | 6.64 | Franklin | . 11 | 2.98 | 7.61 |
| _ | Princeton | . 29 | 2.09 | | Madison Prairie du Chien. | 21 | | 7.30 6.37 |
| , | Michigan. Hudson | . 26 | 2.10 | | Wausau Manitowoc | . 19, 20 . 8 | 2.26 | ***************** |
| • | Grand Haven | . 19 | 2.02 | | | | 1 3 | |
| - | Oswego, | New Yo | rk, 5 | th: a | severe wind | and h | ail st | orm oc- |

curred about five miles south of this city during the afternoon. It was about a mile and a half wide and extended from the southeast to the northeast. Hail-stones as large as pigeons' eggs fell, causing great damage to growing crops.

Port Jervis, New York: a very heavy hail storm passed over a part of Sussex county, New Jersey, on the 5th, devastating a section, fifteen miles in length and ten miles in width, of grain, grass and vegetables. Hail fell to a depth of one The storm was the severest ever experienced in northern New Jersey.

Sand Beach, Huron county, Michigan: a severe hail storm

ten miles long during the night of the 9-10th, passing over the lake at Port Hope. Windows were broken and buildings otherwise injured, and crops greatly damaged.

Spokane Falls, Spokane county, Washington Territory, 10th: the severest hail storm ever known in this section oc-It lasted fifteen minutes, and hail one inch curred at 6 p. m. and a quarter in diameter fell to a depth of about two inches. Great damage resulted to vegetation; windows were broken and other damage done.

Duluth, Minnesota, 12th: between 5 and 6 p.m. several showers of hail fell, the hail-stones being about three-fourths inch in diameter, and fell in sufficient quantities to cover the ground.

Indianápolis, Indiana, 13th: during the thunder-storm on the afternoon of this date a heavy fall of hail, lasting from 6.30 to 6.25 p. m., occurred; the hail-stones were of a variety of irregular shapes, and some of them measured one inch in length by one-half inch in thickness.

Bloomington, McLean county, Illinois, 15th: the vicinity of Saybrook, in this county, was, on the 14th, visited by the severest hail storm known there for years. The storm lasted about fifteen minutes, covering the ground with hail-stones of an unusual size, many of which lay on the ground an hour after the storm abated; great damage was done to the crops.

Moorhead, Minnesota, 15th: during the thunder-storm which

occurred at 8.58 p. m. heavy hail fell, lasting eight minutes, the hail-stones being from one-half to one inch in diameter and covering the ground in some places to a depth of two inches or more. Reports show that but little hail fell beyond the limits of this place and Fargo, Dakota. The principal damage done was to gardens, which were in most cases destroyed.

Fort Buford, Dakota, 15th: a thunder-storm, accompanied by a fall of very heavy hail, lasting only about thirty seconds, occurred about 7.30 p. m.

Fort Totten, Dakota, 15th: a very destructive hail storm is reported to have occurred in the vicinity of Niagara, Dakota, during the evening (about 11 p. m.). The path of the storm was about four miles wide and extended from Niagara to Revnolds. The damage to wheat is estimated at \$200,000.

Richardton, Dakota, 15th: a severe wind and hail storm struck Hebron, fourteen miles east of here, destroying houses and crops; at another place, six miles southeast of here, the storm caused total destruction of crops, and wrecked buildings.

Bristol, Sullivan county, Tennessee: a heavy hail storm passed about five miles northeast of this place during the evening of the 19th, doing much damage to crops, and totally ruining some fields of tobacco and corn.

Fort Buford, Dakota, 21st: a thunder-storm, accompanied by hail of very large size, occurred from 4.54 to 5.08 p.m. The hail-stones were as large as goose eggs, breaking all windows of northern exposure and causing considerable damage to the post garden.

Fort Totten, Dakota, 22d: a destructive hail storm occurred about fourteen miles south of this station during the afternoon of this date, causing damage estimated at \$22,000.

Huron, Dakota, 26th: heavy hail is reported to have fallen at points thirteen miles north of here, causing considerable damage to crops.

Fort Bennett, Dakota, 28th: reports from points south of this station state that a heavy rain and destructive hail storm

occurred on this date. La Crosse, Wisconsin, 29th: at 7.35 a.m. a heavy hail storm occurred, lasting fifteen minutes; the size of the hailstones varied from that of hickory nuts to that of walnuts. Great damage was done to window-glass of southern exposure; the owner of an extensive hot-house within the city limits sustained a loss of \$500. As far as can be ascertained the hail storm covered an area of about ten square miles.

Fort Totten, Dakota, 29th: at 4.45 a.m. scattering hailstones of large size fell with such force as to split shingles and break window-glass, etc. The hail-stones were from one to one and one half inches in diameter; the large hail fell for only a

occurred over a section of country three or four miles wide by few minutes and was followed by a shower of smaller hail, which continued until 5 a.m. At Minnewaukon, Benson county, nearly all window-glass of northern exposure was broken; the storm travelled in a southeasterly direction and caused great damage to crops. It is reported that at points fifteen miles northward the hail-stones measured nine inches in circumference.

Saint Paul, Minnesota, 30th: a thunder-storm occurred during the afternoon, accompanied by a fall of hail from 6.28 to 6.40; the hail-stones varied in size from one-eighth to one inch in diameter and caused damage by breaking numerous windows in the city.

Other hail storms, of less violence and those of which no particulars were reported, occurred in the various states and territories as follows:

Alabama. - Greensborough, 18th.

Arizona.—San Carlos, 19th; Wilcox, 21st; Prescott, 22d.

Arkansas.—Lead Hill, 5th.

California.—Fort Bidwell, 20th. Colorado.—Denver, 3d; Pike's Peak, 3d, 13th, 16th, 18th, 21st, 22d; Braddock, 26th, 30th.

Connecticut.—Hartford, 9th; Bethel, 29th.

Dakota.—Fort Yates, 3d, 22d, 23d; Deadwood, 4th; Wentworth, eight miles southeast of station on 4th, 22d; Fort Sully and Webster, 28th.

Idaho.—Cœur d'Alene, 10th.

Illinois.—Chicago, 4th.

Indiana.—Logansport, 13th; Jeffersonville, 30th.

Indian Territory.—Fort Reno, 5th.

Iowa.—West Union, 8th; Muscatine, 8th, 30th; Burlington, 13th; Oskaloosa, 23d; Fort Madison, 30th.

Kansas.—Allison, 4th; Sherlock, 13th; Wyandotte, 14th.

Kentucky.—Louisville, 30th.

Massachusetts.—Princeton, 29th.

Michigan.—Port Huron, 13th.

Minnesota.—Duluth, 8th; Saint Vincent, 11th; Rochester, 12th; Northfield, 16th, 29th; Moorhead, 18th, 29th.

Montana.—Fort Benton, 16th, 19th.

Nebraska.—Crete, 4th.

New Jersey.—Little Egg Harbor, 2d; Dover, 5th, 29th. New Mexico.—Lava, 2d; Fort Union, 3d, 4th.

New York.—Oswego, 13th; New York City, 25th. Ohio.—Hiram and Garrettsville, 9th.

Oregon.-Fort Klamath, 27th.

Texas.—Fort Concho, southeast of station, 5th.

Utah.—Frisco, 15th; Salt Lake City, 24th.

Vermont.—Post Mills, 9th.

Wisconsin.—Madison, 8th, 29th; La Crosse, 8th, 30th. Wyoming.—Fort Bridger, 1st.

COTTON REGION REPORTS.

The following table shows the means of the maximum and minimum temperatures, and the average rainfall for the several cotton districts, for the month of July, 1885, together with the averages for the same districts for July of the three preceding years:

Temperature and rainfall data for the cotton districts, July, 1885.

| | l | | | | | | | | | | | | |
|---|--|--|--|--|--|--|---|--|--|-------------------|---|--|--|
| 1 | Rainfall. | | | | | Temperature. | | | | | | | |
| , | | uly ing | July, | | 3 | faxim | um. | A | linim | ım. | | | |
| 1 | Districts. | rage for July three preceding ars. | for 385. | Departures. | a for July three pre- ing years. | for July, 1885. | Departures. | n for July three pre- ing years. | for July, 1885. | Departures. | Extre for J 1885. | ulv. | |
| | | Average of three years. | Average | Ъерал | Mean for of thre ceding | Mean | Depar | Mean for of thre ceding | Mean for J 1885. | Depar | Max. | Min. | |
| | New Orleans Savannah Charleston Atlanta Wilmington Memphis Galveston Vicksburg Montgomery Augusta Little Bock Mobile | 5.00 6.28 3.69 4.69 4.77 2.04 5.88 4.11 | 3.80 5.47 6.85 3.99 4.35 2.58 4.89 4.54 3.71 1.95 4.92 | - 0.61 + 0.47 + 0.57 + 0.30 - 0.34 - 1.89 + 0.54 + 0.29 - 0.43 + 0.20 - 0.80 - 0.80 | 93.0 92.8 92.4 90.4 91.1 89.9 95.2 91.9 92.3 92.7 93.9 | 94.2 93.0 91.0 91.3 90.9 91.5 94.0 93.1 92.2 93.7 94.0 | + 1.2 + 0.2 + 0.9 + 1.6 + 1.2 + 1.2 + 1.2 + 1.3 - 0.1 | 73.6 71.7 70.7 68.7 68.9 68.2 73.0 71.6 67.1 70.6 | 73.7 72.2 70.2 69.0 68.3 70.4 70.9 69.7 70.0 69.8 70.4 71.1 | ++ + + + + + | 0 105 103 101 102 102 106 105 99 105 104 105 106 | 64 58 51 46 40 50 51 47 50 53 52 55 | |